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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Number: 6,628,037  
Issued: September 30, 2003  
Name of Patentee: Kinya Matsuzawa  
Serial No.: 10/002,033  
Filing Date: November 15, 2001  
Title of Invention: Power Generator, Electronic Device Using the Same, Method of Setting Plate Thickness in a Magnetic Circuit in Electronically Controlled Timepiece and Power Generator

Certificate  
JUL 11 2005  
of Correction

CERTIFICATE OF MAILING

I hereby certify that this correspondence, and the documents attached hereto, are being deposited with the United States Postal Service as "First Class" mail with sufficient postage in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this date.

Date: June 30, 2005

  
Ann F. George

REQUEST FOR ADDITIONAL CERTIFICATE OF CORRECTION OF  
PATENT  
FOR PTO MISTAKE (37 CFR §1.322(a))

Attention Certificate of Corrections Branch  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

It is noted that errors appear in this patent of a clerical, typographical or minor nature or character, as more fully described below, due to a mistake by the Patent and Trademark Office. This mistake was not corrected by the Certificate of Correction dated April 19, 2005.

Attached hereto in duplicate is Form PTO-1050 with at least one copy being suitable for printing.

The exact page and line number where the error occurs in the patent are:

Column 22, after line 35, please insert

--where  $k_h$  represents hysteresis loss coefficient,  $k_e$  represents eddy-current loss coefficient,  $\rho$  ( $\Omega \cdot m$ ) represents resistivity,  $f$  (Hz) represents frequency and  $B_m$  (T) represents maximum amplitude magnetic flux density of the soft magnetic material; and

JUL 18 2005

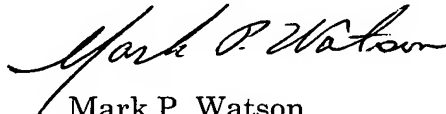
REQUEST FOR CERTIFICATE OF CORRECTION OF  
PATENT FOR PTO MISTAKE (37 CFR §1.322(a))

a processor for driving a time display by the electric energy generated by the power generator.--

Patent Claim 17 corresponds to application Claim 15 (Exhibit A). Please see the Preliminary Amendment received by the Patent Office on June 2, 2002, especially pages 2 and 3 (pages 1-3 included as Exhibit B).

Patentee's undersigned attorney may be reached at the telephone number listed below. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,



Mark P. Watson  
Registration No. 31,448

Please address all correspondence to:  
Epson Research and Development, Inc.  
150 River Oaks Parkway, Suite 225  
San Jose, CA 95134  
Customer No. 20178  
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Facsimile: (408) 954-9058

Date: June 30, 2005

JUL 18 2005

UNITED STATES PATENT AND TRADEMARK OFFICE  
**CERTIFICATE OF CORRECTION**

PATENT NO.: 6,628,037  
DATED: September 30, 2003  
INVENTOR(S): Kinya Matsuzawa

It is certified that an error appears in the above identified patent and that said Letters Patent is hereby corrected as shown below:

Column 22, after line 35, please insert

--where  $k_h$  represents hysteresis loss coefficient,  $k_e$  represents eddy-current loss coefficient,  $\rho$  ( $\Omega \cdot m$ ) represents resistivity,  $f$  (Hz) represents frequency and  $B_m$  (T) represents maximum amplitude magnetic flux density of the soft magnetic material; and

a processor for driving a time display by the electric energy generated by the power generator.--

MAILING ADDRESS OF SENDER:

PATENT NO. 6,628,037

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150 River Oaks Parkway, Suite 225  
San Jose, CA 95134  
Customer No. 20178

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Customer No. 20178

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UNITED STATES PATENT AND TRADEMARK OFFICE  
**CERTIFICATE OF CORRECTION**

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DATED: September 30, 2003  
INVENTOR(S): Kinya Matsuzawa

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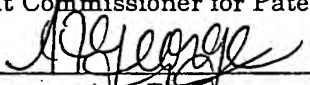


## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor: Kinya Matsuzawa      Group Art Unit: 2834  
Serial No.: 10/002,033      Examiner: Not Yet Assigned  
Filed: November 15, 2001  
Title: Power Generator, Electronic Device Using The Same, Method Of  
Setting Plate Thickness In A Magnetic Circuit In Electronically  
Controlled Timepiece And Power Generator

## CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class mail in an envelope addressed to Assistant Commissioner for Patents, Washington, D.C. 20231 on this date.  
Date: May 13, 2002

  
Ann F. George

## PRELIMINARY AMENDMENT

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

Preliminary to examination please amend the above identified application as follows:

## IN THE CLAIMS

Please substitute the following clean amended claims 12, 14, 15 and 23 for the pending claims with the same number. Marked-up versions of the amended claims follow the "Remarks" section of this amendment.

12. (Amended) The power generator according to claim 1, wherein at least one of the stator and the magnetic core is made of a single layer or a lamination of the soft magnetic material of the plate thickness d.

14. (Amended) An electronic device, comprising:  
a power generator comprising:

a rotor having a permanent magnet;

EXHIBIT

B

a stator and a magnetic core of soft magnetic material constituting a magnetic circuit; and

a coil wound around the magnetic core,

wherein the plate thickness  $d$  (m) of the soft magnetic material constituting at least one of the stator and the magnetic core is set at a value represented by the following formula of

$$d = \sqrt{\frac{k_h}{k_e}} \rho \cdot f^{-0.375} B_m^{-0.175} \quad (1)$$

where  $k_h$  represents hysteresis loss coefficient,  $k_e$  represents eddy-current loss coefficient,  $\rho$  ( $\Omega \cdot m$ ) represents resistivity,  $f$  (Hz) represents frequency and  $B_m$  (T) represents maximum amplitude magnetic flux density of the soft magnetic material; and

a processor actuated by the electric energy generated by the power generator.

15. (Amended) An electronically controlled timepiece, comprising:

a power generator comprising:

a rotor having a permanent magnet;

a stator and a magnetic core of soft magnetic material constituting a magnetic circuit; and

a coil wound around the magnetic core,

wherein the plate thickness  $d$  (m) of the soft magnetic material constituting at least one of the stator and the magnetic core is set at a value represented by the following formula of

$$d = \sqrt{\frac{k_h}{k_e}} \rho \cdot f^{-0.375} B_m^{-0.175} \quad (1)$$

\* where  $k_h$  represents hysteresis loss coefficient,  $k_e$  represents eddy-current loss coefficient,  $\rho(\Omega m)$  represents resistivity,  $f$  (Hz) represents frequency and  $B_m$  (T) represents maximum amplitude magnetic flux density of the soft magnetic material; and

a processor for driving a time display by the electric energy generated by the power generator.

23. (Amended) The method of setting plate thickness in a magnetic circuit in a power generator according to claim 21,

wherein the soft magnetic material constituting at least one of the stator and the magnetic core has a lamination structure and the respective layers forming the lamination structure have a minimum thickness of not less than 0.05mm.

Please add the following new claims 24 to 28:

24. (New) The power generator according to claim 6, wherein at least one of the stator and the magnetic core is made of a single layer or a lamination of the soft magnetic material of the plate thickness  $d$ .

25. (New) The power generator according to claim 24, wherein the soft magnetic material constituting at least one of the stator and the magnetic core has a lamination structure, and the respective layers forming the lamination structure have a minimum thickness of not less than 0.05mm.

26. (New) An electronic device, comprising:

a power generator comprising:

a rotor having a permanent magnet;

a stator and a magnetic core of soft magnetic material constituting a magnetic circuit; and

a coil wound around the magnetic core,

wherein the plate thickness  $d$  (m) of the soft magnetic material constituting at least one of the stator and the magnetic core is set within a plate